UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO. : 6,723,299 B1
DATED : April 20, 2004
INVENTOR(S) : Chen et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Delete title page and substitute with the attached title page.

Drawings,
Replace informal Figures 1-6 with the attached formal versions of Figures 1-6.

Column 1,
Line 61, delete "Cd".
Line 65, delete "an[]".

Column 2,
Lines 35 (both occurrences) and 42, change "Journey" to -- Journet --.

Column 3,
Line 19, delete "if".

Column 5,
Line 62, delete "id".

Column 6,
Line 8, change "γcyclodextrin" to -- γ-cyclodextrin --.
Lines 30 and 35, delete "If".
Line 43, change "of:" to -- of --.

Column 9,
Line 32, change "cyclodextrilnml" to -- cyclodextrin/ml --.
Line 32, change "high-resolufion" to -- high-resolution --.
Line 58, change "cyclodexus" to -- cyclodextrins --.

Column 10,
Line 61, change "engage" to -- encage --.

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DATED : April 20, 2004
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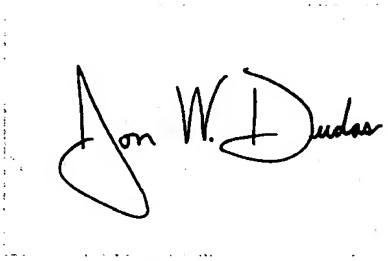
It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 11,
Lines 44 and 45, change "engage" to -- encage --.
Lines 48 and 50, change "engages" to -- encages --.

Signed and Sealed this

Thirtieth Day of May, 2006



JON W. DUDAS
Director of the United States Patent and Trademark Office

(12) **United States Patent**
Chen et al.

(10) Patent No.: US 6,723,299 B1
(45) Date of Patent: Apr. 20, 2004

(54) SYSTEM AND METHOD FOR MANIPULATING NANOTUBES

(75) Inventors: Jian Chen, Richardson, TX (US); Mark J. Dyer, San Jose, CA (US)

(73) Assignee: Zyvex Corporation, Richardson, TX (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 72 days.

(21) Appl. No.: 10/044,317

(22) Filed: Jan. 11, 2002

Related U.S. Application Data

(60) Provisional application No. 60/291,101, filed on May 17, 2001.

(51) Int. Cl.[7] D01F 9/12

(52) U.S. Cl. 423/447.1; 423/447.2; 423/460; 241/16

(58) Field of Search ..... 423/447.2, 460, 423/455 R, 447.1; 241/16

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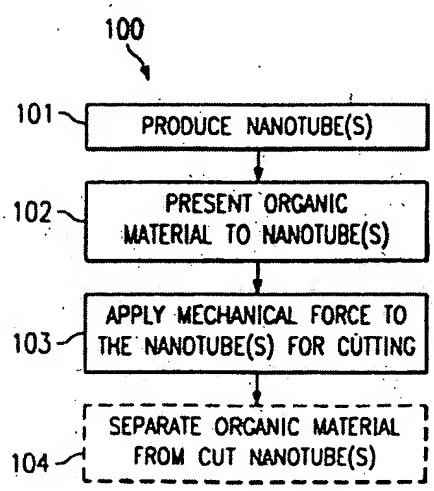
Primary Examiner—Stuart L. Hendrickson
Assistant Examiner—Peter J Lish
(74) *Attorney, Agent, or Firm*—Haynes and Boone, LLP

(57) ABSTRACT

A system and method are disclosed which allow for manipulation of nanotubes. More specifically, embodiments of the present invention enable various types of manipulation of nanotubes utilizing an organic material that is presented to the nanotubes. For example, a preferred embodimem of the present invention enables cutting of nanotubes into shortened nanotubes. Other types of nanotube manipulation that are enabled by embodiments of the present invention, include dispersing nanotubes, enabling dissolution of nanotubes, and noncovalently fuctionalizing nanotubes. The organic material utilized in manipulating nanotubes preferably comprises a soft organic material, soluble organic material, and/or an organic material that acts as a dispersing reagent for dispersing nanotubes. In a preferred embodiment, the organic material utilized for manipulating nanotubes comprises cyclodextrin.

78 Claims, 10 Drawing Sheets



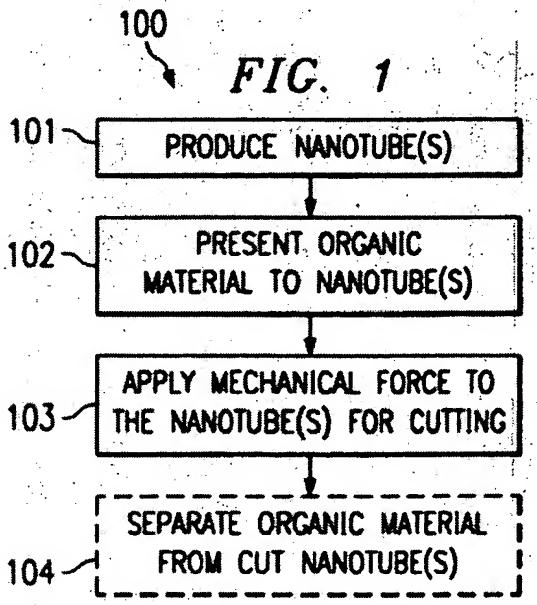


FIG. 1

FIG. 2A

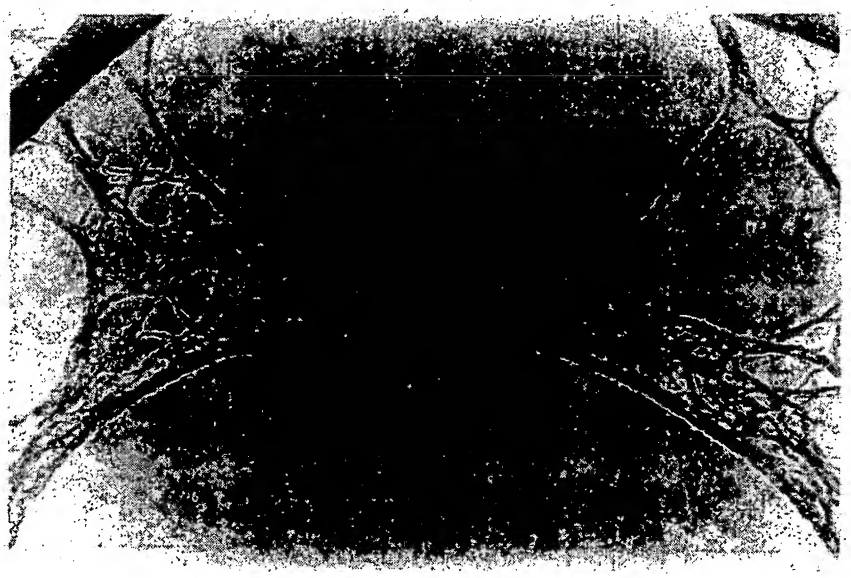


FIG. 2B

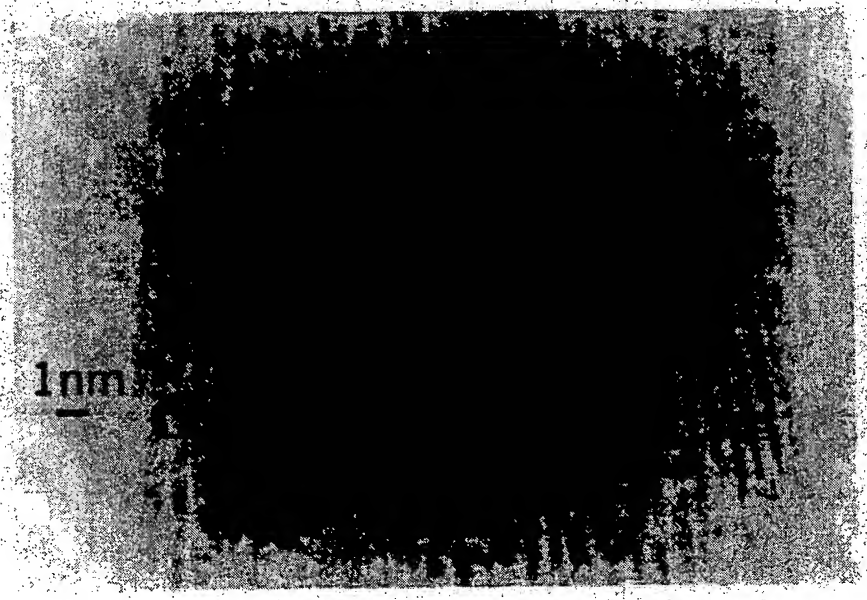


FIG. 3A

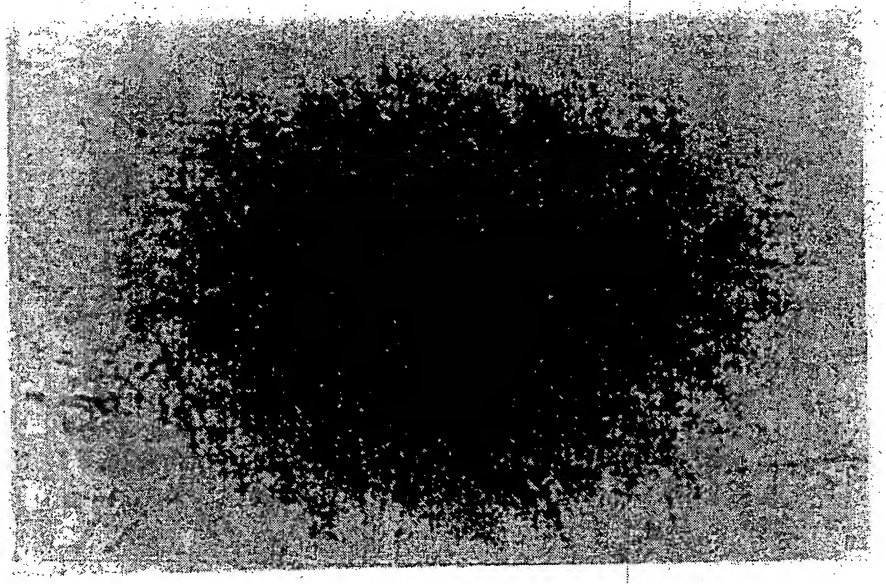


FIG. 3B

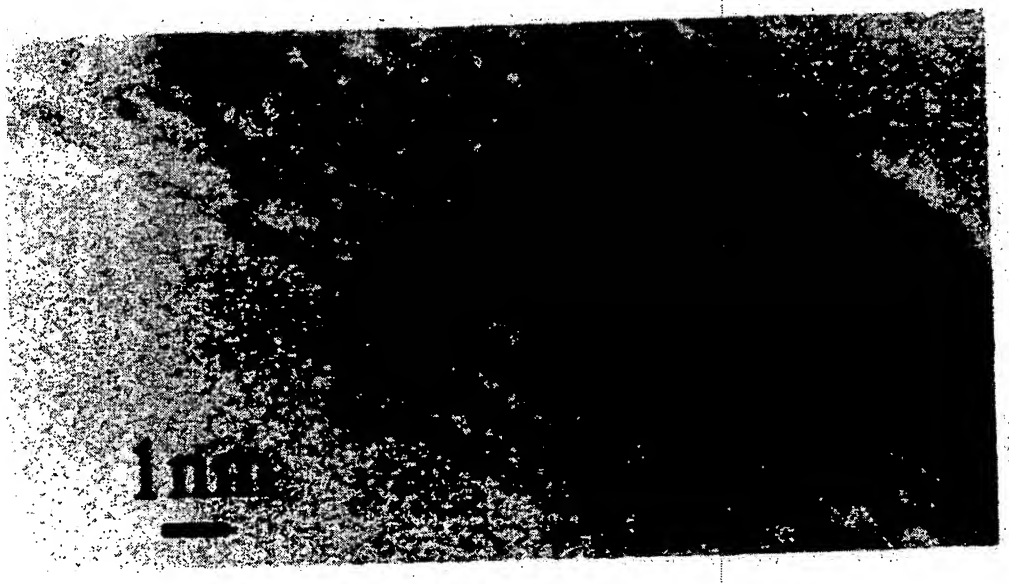
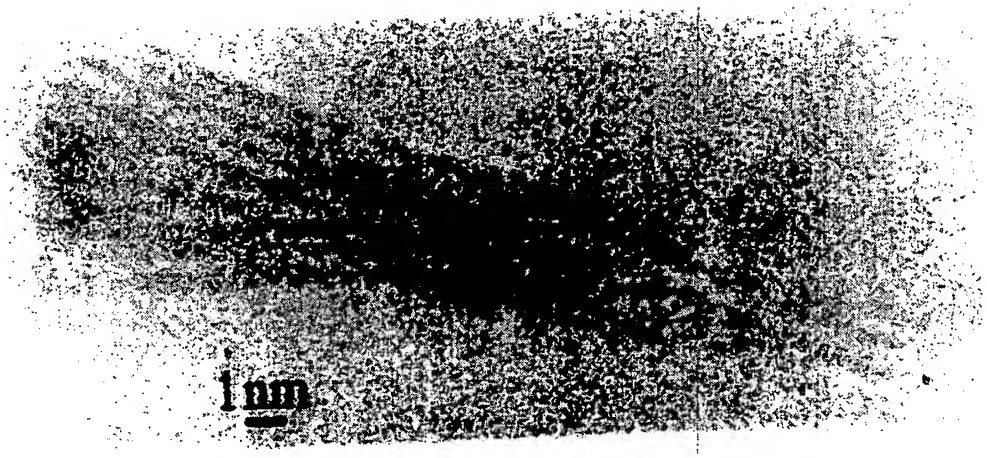


FIG. 3C



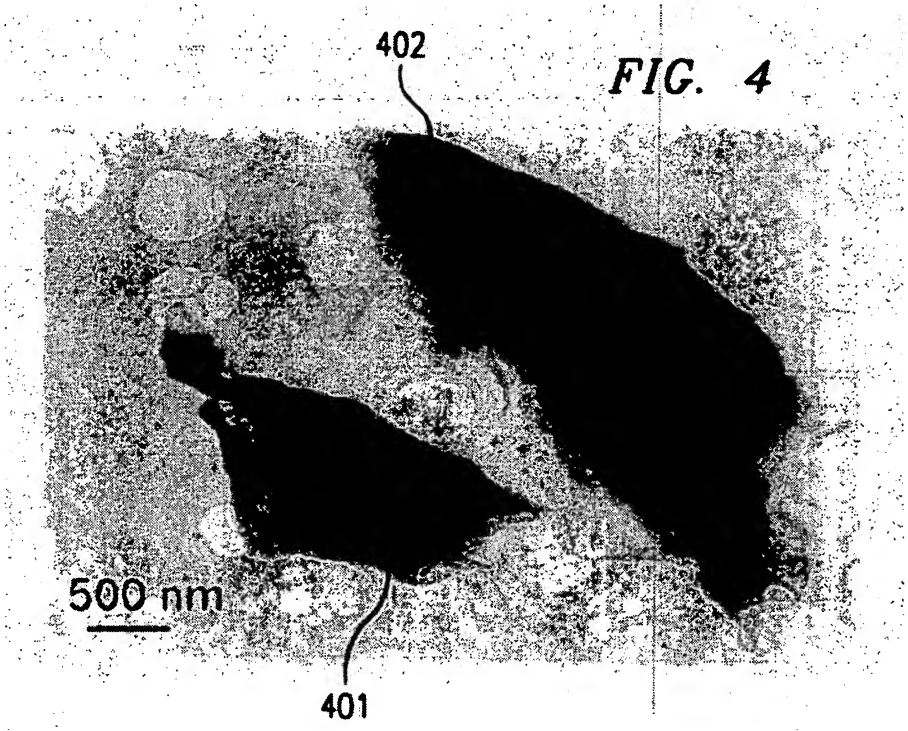


FIG. 4

FIG. 5A

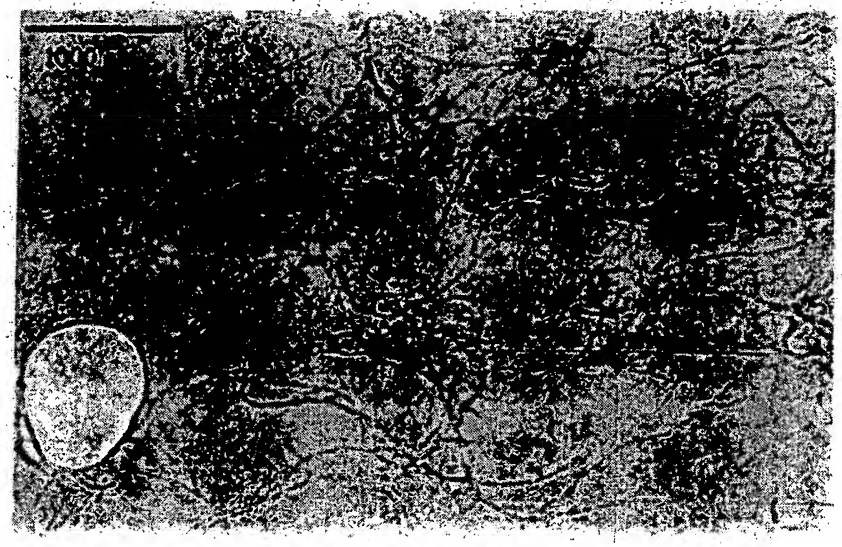


FIG. 5B

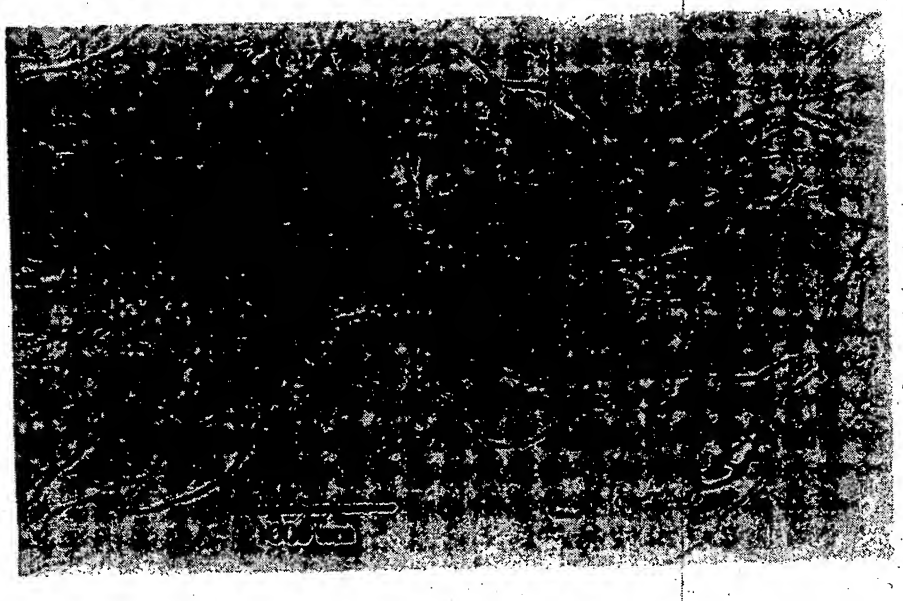


FIG. 6